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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/687,130	10/12/2000	Robert Alan Cochran	10992807-1	1247

7590 03/31/2003

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[REDACTED] EXAMINER

TO, BAOQUOC N

ART UNIT	PAPER NUMBER
2172	6

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/687,130	COCHRAN ET AL.	
	<b>Examiner</b> Baoquoc N To	<b>Art Unit</b> 2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
  - 2a) This action is **FINAL**.      2b) This action is non-final.
  - 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.
- Disposition of Claims**
- 4) Claim(s) 1-13 and 15-19 is/are pending in the application.  
4a) Of the above claim(s) 14 is/are withdrawn from consideration. *canceled*
  - 5) Claim(s) \_\_\_\_\_ is/are allowed.
  - 6) Claim(s) 1-13 and 15-19 is/are rejected.
  - 7) Claim(s) \_\_\_\_\_ is/are objected to.
  - 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)           | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ .                                   |

**DETAILED ACTION**

1. Claim 14 is canceled and claim 13 is amended on the amendment filed on 01/13/03.

***Response to Arguments***

2. Applicant's arguments with respect to claims 1-13 and 15-19 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorenson et al. (US. Patent No. 6,324,548).

Regarding on claim 1, Sorenson teaches method for backing up a computer-readable object stored on a first logical device unit, the method comprising:  
when the object is not currently mirrored to a mass storage device, creating a mirror for the object on a second logical device unit on a mass storage device (col. 3, lines 46-53);

when the object and the mirror for the object are split, resyncing the object with the mirror for the object (col. 3, lines 63-65);

splitting the object and the mirror for the object so that the mirror becomes a backup copy of the object and so that I/O requests directed to the object are not automatically directed to the mirror (col. 3, lines 46-52);

Sorenson does not explicitly teach retrieving a current timestamp from the second logical device and saving it as a saved timestamp; updating the timestamp upon executing any I/O operation directed to the second logical device that alters data stored on the second logical device; when the object is determined to need to be restored from

the mirror, retrieving a current timestamp from the second logical device; comparing the retrieved current timestamp to the saved timestamp; when the current timestamp is equal to the saved timestamp, copying the mirror to the first logical device to replace or again create the object on the first logical device. However, Sorenson teaches, "in response to the user input move command, recovery utility 106 copies a selected portion of audit file 112 to audit archives tape 118, and a corresponding entry in move history files 120 is updated. Move history file 120 includes the tape identifier of the tape to which the audit file information was copied, a begin timestamp, and an end timestamp" (col. 3, lines 53-58). In addition, Sorenson teaches, "A user-input reload command causes recovery utility 106 to copy selected database files from the database dumps 114 back online database 108. The database files retrieved from tape will generally be those having the most recent timestamps, for example, as indicated in dump history file 116" (col. 3, lines 62-67). This teaches the file is copied from the database dumps to the online database base on the most recent timestamp. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to include updating the timestamp and comparing the timestamps in order to provide restoration of from the backup files from the most recent files.

Regarding on claim 2, Sorenson teaches including copying the object to a second backup copy on a difficult-to-modify mass storage device after splitting the object and the mirror for the object (col. 3, lines 53-61).

Regarding on claim 3, Sorenson teaches when the current timestamp is not equal to the saved timestamp, copying the second backup copy from the difficult-to-modify mass storage device to the first logical device to replace (copy means replace) or again create the object on the first logical device (col. 3, lines 62-64).

Regarding on claim 4, Sorenson teaches the mass storage device is one or more hard disk drives and the difficult-to-modify mass storage device is a tape drive (col. 3, line 60).

Regarding on claim 5, Sorenson teaches the first (database dumps) and second (online database) logical units are provided by one or more disk array controllers (audit manager), wherein data stored to the first and second logical units are stored by the one or more disk array controllers on one or more hard disk drives, and wherein the one or more disk array controllers provide timestamps to requesting applications and systems and update the timestamp associated with a logical device upon executing 1/O operations directed to the logical device that alters data stored on the logical device (col. 4, lines 26-35).

Regarding on claim 6, Sorenson teaches prior to retrieving a current timestamp from the second logical device and saving it as a saved timestamp, enabling time stamping on the second logical device unit (col. 5, lines 49-55), and wherein the timestamp is updated upon executing any I/O operation directed to the second logical device that alters data stored on the second logical device only when timestamping is enabled on the second logical device unit (col. 3, lines 55-61).

4. Claims 7-13 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorenson (US. Patent No. 6,324,548) in view of Sakuraba et al. (US. Patent No. 5,452,448).

Claims 7 and 13 rejected the same as claim 1, however, Sorenson does not explicitly teach updating the count and comparing the count. On the other hand, Sakuraba teaches, "the communication 711 starts the replica refreshing process 750 in the replica server 120. The replica server 120 compares the update count field 772 and the validation data field 722 and the validation data field 723 sent at step 755 with the update count made or generated in the replica server 120 and the validation data. This is to evaluate validity of the updated data in the replica server 120" (col. 9, lines 61-66). This teaches the updating the counter in the server and comparing the counter with to validate. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify the teaching of Sakuraba into Sorenson because by utilizing the count as taught Sorenson would be able to achieve the same results as using the timestamp.

Regarding on claim 8, Sorenson teaches including copying the object to a second backup copy on a difficult-to-modify mass storage device after splitting the object and the mirror for the object (col. 3, lines 53-61).

Regarding on claim 9, Sorenson teaches the current count is not equal to the saved count, copying the second backup copy from the difficult-to-modify mass storage device to the first logical device to replace or again create the object on the first storage device (col. 3, lines 62-64).

Regarding on claim 10, Sorenson teaches the mass storage device is one or more hard disk drives and the difficult-to-modify mass storage device is a tap drive (col. 3, line 60).

Regarding on claim 11, Sorenson teaches the first (database dumps) and second logical (online database) unit are provided by one or more disk array controller, wherein data stored on the first and second logical units are stored by the one or more disk array controller on one or more hard disk drives, and wherein the one or more disk array controller provide counts to requesting application and systems and increment the count associated with a logical device upon executing I/O operations directed to the logical device that alters data stored on the logical device (col. 4, lines 26-35).

Regarding on claim 12, Sorenson teaches prior to retrieving a current count from the second logical device and saving it as a saved count, enabling counting on the second logical device unit (col. 5, lines 49-55), and wherein the count (timestamp) is updated upon executing any I/O operation directed to the second logical device that alters data stored on the second logical device only when counting is enable on the second logical device unit (col. 3, lines 55-61).

Regarding on claim 15, Sorenson teaches 1/O operations directed to a logical device unit that enables maintenance of a current state metric for the logical device unit and disables maintenance of a current state metric for the logical device unit, and wherein the controller updates the current state metric only when maintenance of a current state metric for the logical device unit is enabled (col. 5, lines 44-52).

Regarding on claim 16, Sorenson teaches the current state metric is a timestamp (col. 3, lines 53-62).

Regarding on claim 17, Sorenson teaches the controller updates the timestamp by saving a current time (col. 3, lines 55-61).

Regarding on claim 18, Sorenson teach the current state metric is a counter (timestamp) (col. 3, lines 53-63).

Regarding in claim 19, Sakuraba teaches the controller updates the counter by incrementing the counter (col. 9, lines 50-57).

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baoquoc N. To whose telephone number is (703) 305-1949 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y. Vu can be reached at (703) 305-4393.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

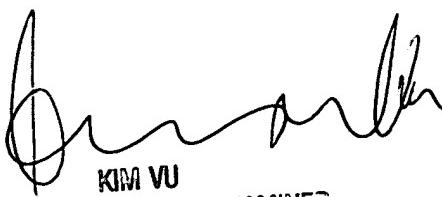
- (703) 746-7238 [After Final Communication]]
- (703) 746-7239 [Official Communication]
- (703) 746-7240 [Non-Official Communication]

Hand-delivered responses should be brought to:

Crystal Park II  
2121 Crystal Drive  
Arlington, VA 22202  
Fourth Floor (Receptionist).

Baoquoc N. To

March 17, 2003



KIM VU  
SUPPLYING PATENT EXAMINER  
TECHNOLOGY CENTER 2100